Intermontanus

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ANNOUNCEMENTS

Spotted Frog distribution in Utah

The Utah Division of Wildlife Resources is in the process of mapping the distribution of the spotted frog (*Rana pretiosa*) in Utah and would like to include your sightings. If you have ever seen spotted frogs in the state, please contact David Ross, Utah Division of Wildlife Resources, 1596 West N. Temple, Salt Lake City UT 84116-3195, phone (801) 538-4763.

A Request from The Disappearing Amphibian Population Task Force

Eric M. Rundquist, the Chairman of the SSAR Regional Society Liaison Committee, has asked that we create a database of amphibian sightings in Utah. The data we collect will be incorporated into the Disappearing Amphibian Population Task Force's (DAPTF) database. Our amphibian sightings must be on the DAPTF data sheets to be included in their database. Contact Breck Bartholomew at 195 West 200 North, Logan, UT 84321 to obtain a copy of the data sheet and instructions.

To get the database going, UtAH is initiating an Annual Amphibian Count. The First Annual Amphibian Count will be held on April 24 & 25. On these two nights groups will be surveying aquatic habitats, throughout Utah, for amphibians. Russell Bezette (801-635-2260) will lead a group in Washington County, where they are likely to find canyon treefrogs, woodhouse toads, red spotted toads, spadefoot toads, and perhaps even some southwestern toads. Breck will lead a group in Cache County on the 24th, and in Utah County on the 25th. These groups can expect to find several chorus frogs and a few tiger salamanders as well as a few other species. Other groups will also be formed so if you would like to join one of these groups, or form your own, let us know. Since the purpose of the amphibian count is to monitor amphibian populations with conservation in mind, absolutely no collecting will be allowed.

In addition to the amphibian database, UtAH is creating a reptile database. Specific data sheets are available to record your reptile sightings, but are not required. A useful sighting must include the species (if you are unsure, or if it is an unusual species or specimen, photograph it), locality (be as specific as possible), date, and time. Other information will greatly increase the usefulness of the sighting. For example, notes on the habitat, temperature (both air and specimen), weather (both current and the past 24 hours), and any other notes or photographs that you take can be used for future studies.

Specimens of non-controlled species and subspecies that are found dead can be collected, but they should be donated to a museum so scientists will have access to them. The Bean Museum at Brigham Young University has the best reptile collection in the state and specimens can be mailed to them; contact the museum at (801) 378-5052 for specific instructions. State law currently prohibits the collection of any controlled or prohibited species or subspecies. This includes specimens that are found dead. Please do not test the law, in the past people have been fined for having road-killed protected species.

The Utah Valley Herpetologists Society

About the same time the Utah Association of Herpetologists (UtAH) was being organized a group of herpetologists in Utah Valley formed the Utah Valley Herpetologists Society (UVHS). It looks like UVHS will become a chapter of UtAH, but they plan to hold periodic meetings and perhaps some field trips in addition to UtAH's activities. For more information contact Dr. Doug Cox at the Monte L. Bean Museum, phone (801) 378-5051.

CAPTIVE CARE

Raising Salamanders and Newts From Embryos to Adults

This article contains some practical tips on raising tailed amphibians from eggs (embryos), which may be considered the ultimate experience in salamander keeping. Readers who want additional information on the subject can find it in the inexpensive books by Herbert Axelrod and Byron Bjorn about salamanders and newts sold at local pet stores. The experiences presented here are based upon 1991 availability of specimens and of local food sources. Those of you living in Ogden, Salt Lake, or Provo will find it easier to obtain live food than in less urban areas, such as the author experienced in Logan.

Sources of embryos. To date I have been able to obtain four species for propagation, the Sharp-Ribbed Newt (*Pleurodeles waltl*), Northwestern Salamander (*Ambystoma gracile*), Spotted Salamander (*Ambystoma maculatum*), and the Ringed Salamander (Ambystoma *annulatum*) The *Pleurodeles* was the only one captive bred from a pair of newts purchased at Zooherp, Inc. The newts spontaneously bred (without me doing anything to encourage it) four times from January to April producing a total of over 900 eggs. In the winter and spring Carolina Biological Supply Co. of Burlington, North Carolina sells salamander eggs that are field collected. They do not guarantee species, but probably all are *Ambystoma*. By ordering very early in the year (January) I received what turned out to be *A. gracile* from Carolina Biological's Oregon division. I received another lot of eggs in March that were *A. maculatum*. The company also has eggs of the Eastern Tiger Salamander (*A. tigrinum tigrinum*) available. In order to find out what species might be available at any given time, I have found it helpful to directly contact Lawrence Wallace of the company in North Carolina by telephone. I have never contacted the amphibian keeper at the Oregon division, and wondered if the Long-Toed Salamander (*A. macrodactylum*) may also be available. The *A. annulatum* embryos were acquired by trade from a university professor in Missouri (it helps to be affiliated with a university myself to have others willing to trade). I obtained this contact by reading the herpetology journals and making an inquiry by telephone.

Initial care of the eggs. Eggs laid singly (*Pleurodeles* and *A. annulatum*) are easier to hatch than those laid in masses (*A. maculatum*, *A. gracile*, *A. t. tigrinum*). This may be due to oxygen starvation in the interior of the egg mass. If you buy eggs

from Carolina Biological, do not follow the instructions in the booklet they send you to care for them, which indicates putting the eggs in a small amount of water then changing the water daily. I tried it and lost about 80% before hatching. Instead, put the egg masses in a 10 gallon aquarium that is bubble-filtered as described below. In my desperation with the other method I resorted to cutting the egg masses into smaller units. As the embryos began to die, they were sucked out with a syringe needle to avoid polluting the other embryos. This technique should still apply to any method of maintaining egg masses before hatching.

Food. The most difficult time period for keeping larvae alive is right after hatching, due to their extremely small size. All species above except *A. annulatum* readily ate baby brine shrimp. The brine shrimp have to be moving, which means hatching the shrimp from eggs (bought from the local pet store or from Carolina Biological), or alternatively by moving dead brine shrimp in front of the animals. The latter method can be accomplished by using a "teasing wand" (a piece of fishing line taped to a pencil), but it is time consuming. When the larvae get larger they begin to hunt around and eat dead brine shrimp on their own. Another food item that is readily consumed by all these species is a white worm (*Enchytraeus*) sold by Carolina Biological. These worms are cultured in soil by feeding them bread soaked in milk to the point of having tens of thousands of them. The worms, when placed in water, aggregate into balls which can be easily cut up into smaller segments for feeding even very small salamander larvae. Since the worm parts wiggle on their own, no teasing is necessary. Warning: the white worms do not comprise a complete diet for the animals. A percentage of *Pleurodeles* and *A. annulatum* raised on this diet for 2-3 months developed hind limb deformity. The legs could not be straightened out but ran parallel to the tail, or in extreme cases interlocked under the body. *Pleurodeles*, *A. gracile*, and *A. maculatum* raised on brine shrimp during the first few months of life developed normal hind limbs. Starting about 3 months the larvae will eat finely chopped meat, such as beef heart (my preference), liver, or kidney which has been trimmed of all fat. A few animals, if they eat too much of the meat, will bloat up and die. I generally feed larvae three times a week. Although the species I mentioned will continue to eat brine shrimp, this can become costly. The larvae will also continue to eat white worms along with the chopped meat. Those of you who can purchase live tubifex worms will also find that this food is quite acceptable for growing larvae. There is also the option of digging or buying earthworms and chopping them up for food. I maintain most of my adults on a once-weekly feeding of beef heart, earthworms (on alternate weeks), and occasionally crickets (for those animals that will eat them). Worms can be bought from sporting good stores in the winter, and crickets are available at pet stores.

Water and filter system. Frequent partial (25-50%) water changes one to three times per week are recommended, using water aged for at least one day. Chlorine and chloramine are toxic to the animals. I have avoided chemical neutralization of chlorine and chloramine. By using a siphon tube, water changing does not become a time-consuming process. An air bubbling device is essential for survival, since it serves to dissipate toxic waste products (ammonia and amines) out of the tank into the air. I lost 300 larvae from several tanks in a single day before realizing the importance of the bubbling device. My bubblers hook to in-tank box-type filters which help keep the water clear. The fiber in these filters should be cleaned twice monthly, or more often as necessary.

Tank size. The bigger the better may be a good rule. I maintain about 4O-5O larvae per 15 gallon tank, which may be a bit crowded. It helps to put hunks of green moss (Ernst sells it) in the tank to give the animals places to crawl in and out of, and to reduce the frequency of them biting each other. The moss must be taken out of the tank for feedings, and the moss particles that break off contribute to uncleanliness of the tank. As the animals grow, segregating the smaller ones from the larger animals is important to avoid cannibalism.

Time to metamorphosis and post-metamorphic problems. Time to metamorphosis varies with the species, but you will find it does not come soon enough. *Pleurodeles* takes 5-6 months, *A. gracile* - 10 to 12 months, *A. maculatum* - 7-9 months, and *A. annulatum* - 5 to 6 months. Even then the animals may be very small (they lose body weight and length at metamorphosis), most being about 2 to 3 inches long. If your plans are to sell them, you may have to feed them as land animals for another 3 months. When the amphibians undergo metamorphosis, they will need to come out of the water a few days later (except *Pleurodeles* which is permanently aquatic). This is best accomplished by having the specimens in a shallow pan of water which sits in an aquarium containing wet moss. The animals climb out of the pan at some point (about a week after metamorphosis) and become land animals. Alternatively, newly metamorphosed salamanders in a tank of water will float on the surface. This is the time to remove them. Failure to do so may result in their death due to drowning, as occurred with my first *A. maculatum* that metamorphosed. At metamorphosis the animals have to adapt to a whole new environment and different way of eating. Most animals seem to go anorexic for 1-2 weeks. The best food I have found to pep them up is small earthworms. Later on they will want the beef heart again.

Survival rates. First of all, I do not recommend trying to raise 900 newt larvae as I attempted to do. Fortunately most of them died, which brought it down to a more reasonable number. Unnecessary deaths in three of the species occurred because I violated the principles described above, due to lack of experience. Approximate survival rates were as follows: *Pleurodeles* - 100 out of 900, *A. gracile* - 15 of 160, *A. maculatum* - 7 of 60, and *A. annulatum* - 85 of 128. The greater success rate in raising *A. annulatum* came from getting some of the bugs out of the system. Even then, there was still a problem with the incomplete diet causing hind limb deformity in many of these animals, as described earlier.

Why raise salamanders and newts in captivity? Raising tailed amphibians from embryos may be the only way you may ever get certain species. Sometimes, animals discovered in the field are found as larvae, whereas adults are rarely seen (this is the case with *A. annulatum*). Also, commercially-available tailed amphibians are coming more and more from captive raised animals because states and countries are banning the sale of field-collected specimens. Amphibians you see in books that you have always wanted but are never offered for sale are probably protected by these laws. If you want to earn a little extra money (and it is not a whole lot at that) raising salamanders and newts, it will not be worth your time to propagate Japanese

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Newts or California Newts that are collected in huge numbers in the wild for sale. Trying to sell the animals you raise is a whole different experience, particularly in dealing with local pet stores that do not pay a lot for specimens that took so much time and effort to raise. Perhaps the most enjoyable reasons for raising these animals is the experience gained by doing so, and in observing the different habits and other changes that happen to them as they mature.

Donald F. Smee, Utah State University, Logan, UT 84322-5600.

Editor's note: State law allows for the collection of any number of native salamanders, but the commercialization or trade of any native species (including captive bred progeny) is strictly prohibited. You can obtain a copy of the reptile and amphibian laws by calling any regional office of the Utah Division of Wildlife Resources. The telephone number for the state office is (801) 538-4700.

UTAH HERP ACCOUNT

This is the first of a series of accounts featuring species or subspecies of Utah amphibians and reptiles. Please contact the editor if you would like to write an account for one of these animals.

Utah Night Lizard, *Xantusia vigilis utahensis*. Tanner

Legal status. Controlled: These lizards may not be collected, imported, exported, transported, possessed, sold, transfered, or released without first obtaining a certificate of registration from the Utah Division of Wildlife Resources.
Description. Ranges (and means) of diagnostic characters: 4th finger lamellae 15-19 (16.1); 4th toe lamellae 23-25 (24); dorsal scale around mid-body 37-39 (37.1); transverse rows of gulars 37-40 (39); femoral pores per leg 7-11 (9.5); transverse rows of ventral 29-30 (29.3); supralabials 7-10 (8.2); infralabials 6-9 (6.2). Small dorsal spots on a background of orange-buff or yellow to light grey.
Range. Known from only thirteen specimens from four localities (all in Utah; Fig.1): holotype (BYU 11731) and paratypes (BYU 11732-3) from " 20 miles northwest of Hite, Garfield Co. (about 5 miles above Hog Spring)," collected on 10 June 1954 by W.W. Tanner and W.L. Tanner; topotypes (BYU 12644-7 and 13238) collected by W.W. Tanner at Trachyte Creek, Garfield Co.; BYU 13737, collected on 11 May 1957 by R. Liddiard at the Indian house east of the old campground at Natural Bridges National Monument, San Juan Co.; BYU 17739, collected on 14 may 1961 at Green Water Spring, San Juan Co.; BYU 31207-8, Trachyte Creek, Garfield Co., collected 19 May 1968 by W.L. Grogan, J.M. Hopkin, and W. Ingram; and Kachina Bridge, Natural Bridges National Monument, San Juan Co., found dead in a pool by T. Persons (currently no museum number).

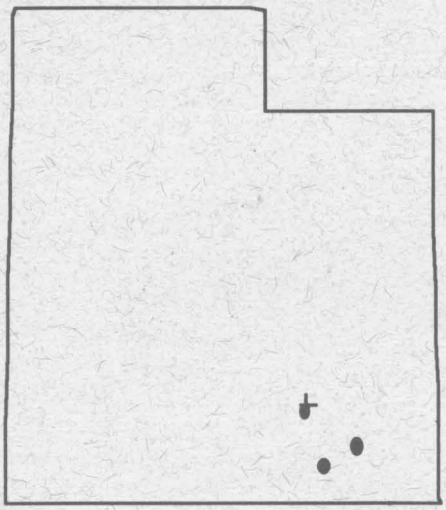

Fig. 1. Distribution of the Utah night lizard, *Xantusia vigilis utahensis*, (+) type locality,(●) other localities.

The known range of this subspecies is 200 miles from the nearest conspecific population, although the species has been reported (but not confirmed) along the Colorado River in Northern Arizona (Bezy 1982). ~~The range of these lizards is~~ probably greater than currently known and they may occur in areas between Washington and Garfield counties.
Habitat. Very little is known about this subspecies, but Tanner (1957, 1958) reported finding specimens in the lower leaves of *Yucca* species in the cold desert and beneath rocks near Yucca in pinyon-juniper habitat. The species is generally considered to prefer areas where Yucca occurs, but the author has found *X.v. vigilis* in Clark County, Nevada under wood and cardboard in areas apparently free of Yucca species. The Utah night lizard is one of the least known reptiles in Utah so, if you ever happen to find one of these uncommon lizards, please take a photograph of it and notify UtAH so we can add the location to our herp database.
References.
Bezy, Robert L. (1982). *Xantusia vigilis* Baird, Desert night lizard. S S A R Catalogue of American Amphibians and Reptiles. No. 302.

Tanner, Wilmer W. (1957). A new *Xantusia* from Southeastern Utah. Herpetologica. **13**: 5-11.

_____. (1958). Herpetological range extensions. Herpetologica. **14**: 195-6.

Breck Bartholomew, Utah State University, Logan, UT 84321

CLASSIFIED ADS

For Sale: Modular Alderwood snake cage 7' tall x 8' long x 2.5' deep, divided into three or six individual cages. Professionally built with floor heat and thermostats in each section. Original cost $1000, will sell for $300 obo. Contact Steve Morrow,184 Beryl Ave. #4, Salt Lake City, UT 84115, (801) 220-2391 work or 486-4349 home.

Wanted: Herpetology by Porter (1972). Contact Trevor Persons, 9 Peters St. Orono, ME 04473, (207) 866-4069.

Wanted: Female Coastal Rosy Boas (*Lichanura trivirgata roseofusca*), must be captive born. Contact Breck Bartholomew, 195 West 200 North, Logan UT 84321, (801) 752-0297.

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UPCOMING EVENTS:

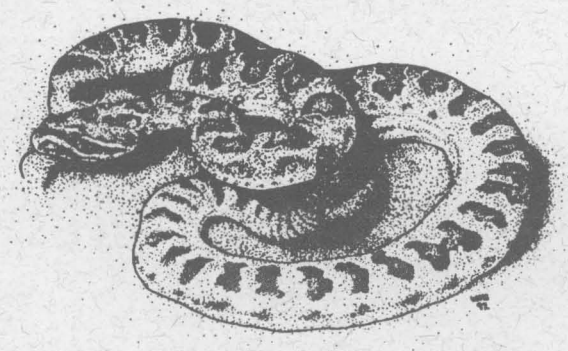
First Annual UtAH Amphibian Count
Date: April 24 & 25
Location: State-wide

If you plan to participate in the amphibian count contact Breck Bartholomew, 195 west 200 North, Logan UT 84321, phone (801) 752-0297. Breck will send you a copy of the data sheet, instructions, and the names of other people in your area who plan to count amphibians. Please note that we would like to record amphibian sightings year round, so if you would like to look for amphibians anytime you should get a copy of the data sheet.

ADDITIONAL NOTES:

If you have any herpetological information that you would like to share with UtAH members, please submit it for publication. We would like to publish a variety of things; from research to experiences with herps and artwork. It would be especially nice to hear from the many amateur herpetologists about their experiences. In addition, if you have questions or need information about any herpetological topic or species, let us know and we'll try to track down someone that has an answer.

Don't forget to join UtAH!



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